Integrated Logistics Support Plan

For The

Digital Voice Recorder 2 (DVR2)

CIP Number: C-23
April 24, 2002

<u>APPROVAL PAGE</u>

This Integrated Logistics Support Plan (ILSP) is for the
Digital Voice Recorder 2 (DVR2).

This ILSP presents the procedures necessary to accomplish the
National Airspace Integrated Logistics Support (NAILS)
requirements for the DVR2.

The Acquisition Program Manager for Logistics (APML) is the
point of contact for all NAILS related matters of this
project.

Approval of this document constitutes the baseline for the
ILSP. Any additional changes will require coordination with
the NAILSMT members.

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CHAPTER 1. INTRODUCTION

This Integrated Logistics Support Plan (ILSP) for the Digital Voice Recorder 2 (DVR2) project provides guidance for integrated logistic support planning and execution and will be updated as life cycle support requirements change.

1.1 Background

The Federal Acquisition Streamlining Act (FASA) of 1994 provides for the establishment of a Federal Aviation Administration (FAA) Acquisition Pilot Program. The Digital Voice Recording System (DVRS) was selected as the Acquisition Pilot Program within the Department of Transportation. Under FASA of 1994, the Secretary of Transportation is authorized to waive many of the provisions of the Federal Acquisition Regulation that are not required by statue, thus providing the FAA the flexibility in procurement procedures for Non-Development Items (NDI).

National Airspace Integrated Logistics Support (NAILS) is often the most difficult aspect of any NDI acquisition. Shortened schedules, technology driven configuration changes and utilization of Commercial-off-the-Shelf (COTS) training, all contribute to the challenge of NDI logistics support. To successfully deploy an NDI alternative means that supportability becomes an even more critical issue. Every NDI acquisition requires an individualized logistics support strategy, based upon that acquisition's specific characteristics. The development and execution of an NDI support strategy will require innovative and non-traditional approaches.

The DVRS project in that it is divided into three distinct phases. Phase I is under Capital Investment Plan (CIP) 22-11, Multichannel Voice Recorders. Phase I will provide replacement recorders to Airport Traffic Control Tower (ATCT), Terminal Radar Approach Control (TRACONs) and a very limited number of Air Route Traffic Control Centers (ARTCCs). Phases II and III will be funded under the Voice Recorder Replacement Program, CIP C-23. Phase II and III will provide recorders to Automated Flight Service Stations (AFSSs) and ARTCCs.

Engineering Change Proposal: A DVRS Contract Modification #59, dated 22 March 2001 Engineering Change Proposal(ECP) was signed for Technology Infusion upgrade to increase recorder capacity, improve archiving, reduce the reliance on DAT tapes

and introduce software upgrades. The technical upgrade to the
DVRS introduces the Digital Voice Recorder 2 (DVR2). For
additional information on DVR2 see paragraph 1.2 System
Description.

The initial DVRS contract was awarded to DENRO Incorporated,
Gaithersburg, Maryland on August 4, 1995. Since contract
award Litton-Amecom purchased Denro Inc. and the new
organization was designated as Litton-Denro. Northrop Grumman
subsequently purchased Litton-Denro and the organization is
now identified as Northrop Grumman Electronic Systems Denro
System. Contractually, the support for the DVRS is still
listed under Litton Advanced Systems Inc.

1.2 Purpose of ILS Plan

This document describes the NAILS planned for the DVR2.
Included are government and contractor responsibilities, a
management matrix, maintenance requirements and a description
of NAILS elements. Also included are applicable referenced
documents (Appendix A), abbreviations, acronyms and
definitions (Appendix B), points of contact (Appendix C),
disposal plan (Appendix D), and equipment return form
(Appendix E).

NAILS is an interrelated, unified, and iterative approach to
the managerial and technical activities which support the
National Airspace System (NAS). The analyses associated with
NAILS influences the system design to minimize life-cycle
cost. Through this program, support requirements are
identified and acquired.

Management attention on key logistics issues is focused
through nine logistic support elements that are required for
NAILS task completion. These logistic support elements are as
follows:

1)   Maintenance Planning;
2)   Supply Support;
3)   Support Equipment;
4)   Training, Training Support and Personnel Skills;
5)   Direct-Work Maintenance Staffing;
6)   Maintenance Support Facilities;
7)   Packaging, Handling, Storage, and Transportation (PHS&T);
8)   Technical Data.
9)   Computer Resource Support

The logistics support requirements generated in response to each of these elements is based upon the life cycle maintenance requirements for the DVR2. Each of the above logistics support elements is covered in detail in subsequent sections of this ILSP.

1.3 System Description

The DVRS is a 16-channel multichannel modular digital voice recorder and reproducer system. The digital voice recorder is utilized to record all air-ground (A/G) voice communications between air traffic controllers and pilots, and ground-ground (G/G) intra and interfacility communications between air traffic personnel. The reproducer is designed for playback of call files and reproducing call files that have been recorded on digital audio tape (DAT) onto a standard cassette tape. Call files can be searched for playback using channel, time/date, or a combination of both parameters. The reproducer will provide the capability to playback selected recording from the digital voice recorder for transcription, evaluation and training purposes. The digital voice recorder consists of a digital recorder unit (DRU), control workstation, two speakers, external alarm with optional global positioning system (GPS) antenna receiver, uninterruptable power supply and AC line conditioner (if required).

The DVR2 utilize 24-channel capacity Analog to Digital Interface (ADIF) and Audio Line Interface (ALI) boards in the DRU chassis. Eliminating one DAT drive and incorporating a mirrored hard drive configuration of dual 8 Giga Byte hard drives, and a mirroring device for mirroring control. The DVR2 increases the CPU memory to 16MB and adds new cabling within the chassis for connection of the new channel capacity board, mirroring device and hard drive configuration. The DVR2 includes upgrades to the NICE software and workstation operating system.

1.4 System Schedule and Logistics Milestones

All DVR2 and on-site spares if required will be shipped to operational facilities in accordance with the contract schedule. The following Table 1.4-1 lists the system schedule and logistics milestones.

TABLE 1.4-1 System Schedule and Logistics Milestones

EVENT   **SCHEDULE**

1. DVR2 Engineering Change Proposal (ECP) Signed	March 2001
2. Initial DVR2 ILSP Approval Date	April 2002
3. First System Delivery	January 2002
4. First Airway Facilities(AF)Training	January 2002
5. Last System Delivery Date	August 2004
6. OT&E DVR2 in Seattle, WA	February 2002

1.5 Interface Capability Requirements

The DVR2 equipment will provide and support the following
interfaces:
     Audio Inputs – 2 wire Interface
     IRIG-B Time Code Synchronization Input
     Audio Output Jack
     Earphone Jack
     Remote Alarm Interface
     External Speaker Interface

CHAPTER 2. LOGISTICS MANAGEMENT

This section describes the organizational structure and responsibilities of the contractor and the Government with respect to the planning and execution of logistics support.

2.1 National Airspace Integrated Logistics Support Management Team (NAILSMT)

The APML for the DVR2 project is responsible for establishing an NAILSMT to support the project. The NAILSMT will provide guidance, coordination, and support for all logistics requirements of the DVR2 life-cycle. Guidance on responsibilities of the NAILSMT is contained in FAA Integrated Logistics Support Process Guide for the Acquisition Management System, Chapter 6 Integrated Logistics Support Activities-In-Service Management. The NAILSMT membership and offices that will support this program are listed in Table 2.1-1.

TABLE 2.1-1   NAILSMT MEMBERSHIP

POSITION	OFFICE
Chairperson, APML	ARN-200, Communications and Navigation Division
Co-chairperson, Product Leader	AND-320, Integrated Product Team for Voice Switching and Recording Program
Member	ARN-200, Communications and Navigation Division, Air Traffic Requirements
Member	ARN-200, Communications and Navigation Division, Airway Facilities Requirements
Member	AFZ-100, Airway Facilities Training Division
Member	ATX-100, Air Traffic Training Division
Member	AFZ-200, Work Force Planning and Development Division
Member	AOS-510, Communications Engineering Support Branch
Member	AML-8000, Automation/Communications Product Division
Member	AMA-410, Communications Division
Member	AOP-1000, In-Service Management Division
Member	ARN-200/CEXEC Support Contractor

POSITION	OFFICE
Member	AXX-400/500 Regional Associate Program Manager

2.2 Government Organizational Structure and Responsibilities

The following presents the FAA activities responsible for providing management and technical support for the DVR2 project.

ARN-200 - The Communications and Navigation Division is responsible for the overall Life-Cycle Management for NAS Communications Systems, Equipment, Technical and Maintenance requirements. It coordinates disposal of systems and equipment for Airway Facilities, supports the NAILS process, manages the acquisition to operational process, oversees configuration management processes, and monitors depot level spares and repair parts. To ensure logistics support for systems, ARN-200 appoints an APML and support team to direct and manage the logistics portions of the project.

ARN-200/APML - The APML reviews all NAILS requirements for each project and provide guidance to the Product Leader and other project personnel to accomplish the project with timely integration of requirements for the project development, acquisition and Life-Cycle Support.

ARN-200/AT Requirements - The AT Requirements Specialist is responsible coordinating and recommending AT requirements for existing and planned systems in the NAS.

ARN-200/AF Requirements - The AF Requirements Specialist is responsible for developing and recommending Airway Facilities (AF) maintenance and NAILS long-range plans, policies, site sparing methodologies and maintenance requirements for existing and planned facilities and services in the NAS.

ARN-200/CEXEC - The Support Contractor works with FAA logistics representatives in developing, coordinating, and integrating logistics support, and life cycle management of NAS equipment.

AND-320 - The Integrated Product Team for Voice Switching and Recording Program provides management direction for the DVR2 project. The Product Leader oversees the acquisition, design, development, testing, and commissioning of the project. The Product Leader is also responsible for the budget, contract, and all activities necessary to acquire and support the project through deployment.

<u>AFZ-100</u> - The Training Division is responsible for analyzing AF maintenance training requirements for the DVR2 project. AFZ-100 is also responsible for obtaining training funds and scheduling training.

<u>AFZ-200</u> - Work Force Planning and Development Division develops and issues policies, standards, and guidelines relating to airway facilities maintenance coverage and response, position classification, career development, technical training requirements, certification of technical training requirements, certification of technical field personnel, and field organization.

<u>ATX-100</u> - The AT Training Division is responsible for analyzing AT training requirements for the DVR2. ATX-100 is also responsible for coordinating and scheduling AT training.

<u>AMA-410</u> - The Communications Division is responsible for technical evaluation of AF training developed and conducted by the contractor. It also has the responsibility for conducting new equipment training and attrition training.

<u>AOP-1000</u> - The In-service Management Division is the focal point for 470s, CM, In-service reviews, ensure AF needs are included in In-service system discussions, AF interface with product team, and monitors/evaluates In-service support system needs.

<u>AOS-510</u> - The Facility System Engineering Branch is responsible for direct engineering support for field facilities. This includes software maintenance and updating; publishing and issuing of directives; and in-service improvement and modification development, evaluation, and implementation for NAS systems as assigned.

<u>AML-8000</u> - The Federal Aviation Administration Logistics Center (FAALC) is responsible for provisioning, supply support, and the management of depot-level maintenance, whether performed by the FAA or by a contractor.

<u>AXX-400/500</u> - These individuals represent their respective regions and provide a communications link for system, FAA, and contractor requirements for the implementation, operations, and life cycle support of the DVR2 project.

CHAPTER 3. MAINTENANCE PLANNING

This section describes the maintenance concept for the DVR2.

3.1 Maintenance Concept

The DVR2 equipment will be supported using two levels of
maintenance: field and depot. The FAA performs Field
maintenance. The contractor performs depot maintenance.

3.1.1 <u>Field Maintenance</u>. Field maintenance will be performed
by FAA technicians and consists of fault isolation of the
failure to the line replaceable unit (LRU) level, replacing it
with a serviceable LRU and certifying the repair. Preventive
field maintenance will be performed in accordance with
performance checks specified in a FAA Notice N6670.41, Interim
Certification, Standards and Tolerances, Operational
Configuration Parameters, dated April 4, 2002 for the Digital
Voice Recorder. The cancellation date for this notice is
April 4, 2003. This notice was developed by AOS-510 to
address digital recording.

The FAA will assume field maintenance responsibilities
immediately following government acceptance of the DVR2 at the
site.

3.1.2 <u>Depot Maintenance</u>.
LITTON-DENRO will perform depot maintenance of the DVR2 for
the life cycle of the equipment.

3.2 Second Level Engineering Support

This section outlines the procedures for obtaining second
level engineering support for commissioned and pre-
commissioned DVR2 sites.

3.2.1 Commissioned Sites.
Second level engineering support and technical assistance will
be managed and provided by AOS-510 for all commissioned sites.
Sites should call AOS-510 at the following numbers for
technical assistance:

(405) 954-0066 (0800 to 1630 CST, normal duty hours)

(405) 954-3583 (after normal duty hours)

AOS Help Desk Toll Free at 1-800-475-2667. The AOS Help Desk
is operational 24-hours per day.

If assistance is required from the contractor, LITTON-DENRO, AOS-510 will arrange for this support.

3.2.2 Pre-Commissioned Sites.
Any site that is not commissioned should contact Litton-Denro for technical assistance. The telephone number at Litton-Denro for technical assistance is (301) 869-1628 or 1-800-952-2502.

3.3 DRU Air Filter

The DVR2 requires periodic replacement of the DRU air filter. Refer to FAA notice 6670.41 for cleaning and reuse instructions. Sites can order the air filter, part number 260908-001, NSN 4130-01-459-7415 through the LIS or the air filter can be locally purchased. Two air filters per DRU are provided with the DVR2.

3.4 Uninterrupable Power Supply

The DVR2 uninterruptable power supply (UPS) eventually will need a replacement battery. If the site technician determines a battery is required they must find a local source for procurement. The site will contact the Customer Care Center at 1-888-322-9824 to arrange for the FAALC to issue a PR to that source. Batteries are not stocked at the FAALC due to OSHA requirements.

CHAPTER 4. SUPPLY SUPPORT

This section describes the methods used for supplying spare and repair parts for maintenance of DVR2 equipment, and includes the planned method for obtaining and storing spare parts, both common and parts-peculiar, needed to support the maintenance activities.

4.1 Responsibilities

1. <u>Site Spares:</u> Initial site spares for the DVRS was provided to all ARTCCs, Level IV and V facilities, CERAPs and selected remote locations. Per AAF-2, any other facilities with ARTS IIIE will receive site spares. Additionally, site spares will be provided to selected System Maintenance Office (SMO) or Work Center (WC) in each region. The determination of which SMOs or WCs will be coordinated with the appropriate RAPM. These same recommendations are applicable to the DVR2 system site spares.

This site sparing methodology has been re-evaluated by ARN-200. Operational availability levels were closely monitored. Currently there is not a requirement to modify the site spares kit to meet the life cycle support requirements of the DVR2.

The following list of site spares in quantities of one each will be provided to the selected locations discussed in the above procedures. This list includes the latest part numbers changes for the DVR2 equipment marked with an *.

ITEM NAME	PART NO.	NSN
*ADIF Board	259101-002	5998-01-491-2726
*ALI Board	259111-002	5998-01-491-2825
*Mirroring Device	258080-001	5998-01-491-4289
APA-4 Board	259112-001	5998-01-434-7525
LAF Board	259113-002	5998-01-434-7552
CPU Board	259361-101	7021-01-495-6381
SCSI Board	259362-001	1998-01-462-5887
Power Supply	259091-002	6130-01-459-7357
DAT Drive	259230-001	7025-01-434-7535

2. <u>Depot Spares:</u> Depot spares will be stocked and provided by Litton-Denro.

4.2 Warranty

All DVR2 equipment will be completely operational when
installed. The warranty begins when the site accepts the DVR2
(one year warranty). After the equipment has been accepted
and placed in service, the contractor will repair or replace
all hardware, software and firmware received from the
Government, which fails or become defective. The LRUs will be
replaced or repaired to restore them to a serviceable
condition, which meets the original performance specification.

4.3 Return of Unserviceable Repairables

Sites will return the unserviceable LRU within 5 days to
Litton-Denro. IAW FAA Order 4250.9B, "Field Material
Management and Control Handbook". Timely return of the
unserviceable unit is required to support the repair pipeline
and avoid potentially compromising support for other DVR2
sites.

When an LRU is received from Litton-Denro, site personnel will
return the unserviceable LRU in the shipping container of the
serviceable LRU to Litton-Denro.

Maintenance personnel should complete the Litton-Denro DVR2
Equipment Return Document for all DVR2 line replaceable units
removed for return to the repair source. Return of the
unserviceable unit must be accompanied by the Litton-Denro
DVR2 Equipment Return Document which is included in each
serviceable unit shipment. Any suspected defects or repair
attempted should be documented in the **"Reason for Return"**
section of the form (See Appendix E). This information will
assist the repair facility in determining necessary repair
action and documenting failure trends. A memorandum to this
effect, dated April 7, 1998 has been distributed to all
concerned personnel.

4.4 FAALC Supply Support

The FAA sites will use the Logistics and Inventory System
(LIS) to requisition replenishment parts from Litton-Denro
through the FAALC.

Questions concerning warranty or requisition issues can be
referred to the **FAALC Customer Care Center Toll Free at 1-888-
322-9824, or (405) 954-3793**. If the Customer Care Center

cannot answer your questions they can ensure correct routing to an individual at the FAALC who can assist you.

The following guidance for DVR2 Warranty Service Operating Policy is effective May 1, 1996:

    a.   Non-commissioned sites may utilize P2 or P5 Warranty service only.

    b.   Commissioned sites may utilize P1, P2 or P5 Warranty service.

    c.

4.5 Recording Media

Recording Media: Each site will receive twenty (20) digital audio tapes (DAT) per DRU with the system delivery.

The following information should be utilized to requisition replacement DAT and cleaning cartridges through the Logistics Information System (LIS).

    Description: Digital Audio Tapes
    National Stock Number: 7045-01-414-5546
    Ship Quantity: 5
    Unit of Issue: each

    Description: DAT Cleaner Cartridge
    National Stock Number: 7045-01-366-5912
    Ship Quantity: 2
    Unit of Issue: each

4.6 Disposition of Replaced Equipment and Supporting Spares

Equipment and spares replaced by the DVR2 will be removed and disposed of in accordance with FAA Order 4800.2C and AAF-1 Memorandum, "Disposition Decisions for Replaced Equipments", dated October 1, 1992. The Multichannel Recorder Disposal Plan (see Appendix D) was distributed via AND-320 memorandum dated July 15, 1996. This plan will assist FAA personnel in the removal of existing analog voice recorder, spares and associated support equipment.

CHAPTER 5. SUPPORT EQUIPMENT

This section describes support and test equipment, including all common and special tools, as well as any connectors or other interface devices necessary to connect the support equipment to the end item or Unit Under Test (UUT).

5.1 Common Tools and Test Equipment

All necessary common tools and test/support equipment, for the DVR2 equipment will be located on site or at the work center.

The following common tools and Test Equipment will be required for the maintenance of the DVR2:
    Screwdriver, Philips head #2, 8" long
    Screwdriver, Philips head #1, 8" long
    Screwdriver, Flathead
    Diagonal Cutters
    Pliers, Needle Nose

The following common test equipment or equivalent will be required for the maintenance of the DVR2:
    Audio Oscillator, HP 3325B, NSN 6625-01-297-9969
    TIM Set, HP-4934A, NSN 6625-01-380-5252
    Oscilloscope, TDS420A, NSN 6625-01-422-3242
    Cassette Cleaning Cartridge, Radio Shack 44-1162, or
    equivalent

5.2 Special Tools and Test Equipment

No special tools, test/support equipment, or special interface devices are required for maintaining the DVR2 equipment.

5.3 Procurement and Distribution

*If the nut driver listed above is not available, facilities have the ability to procure the required tool using site preparation funds.

5.4 Maintenance and Calibration of Tools and Test Equipment

The maintenance and calibration of common tools and test equipment used for the maintenance of DVR2 equipment is the responsibility of the regions.

FAA owned equipment will be calibrated in accordance with FAA Order 6200.4D. Calibration records will be kept for all equipment that requires calibration.

CHAPTER 6. TRAINING, TRAINING SUPPORT, AND PERSONNEL SKILLS

6.1 General

The purpose of this section is to provide information, which describes training requirements of FAA personnel responsible for the maintenance and operation of the DVR2. All training requirements and course prerequisites are identified. This training plan contributes to the planning, managing, developing and conducting the initial training. It serves as the foundation for transition and site-specific training plans.

6.2 System Training Requirements

The DVR2 training will consist of two courses, Operators and Maintenance courses.

6.2.1 Air Traffic (AT) Training. Air Traffic training is required for the personnel responsible for changing and reproducing tapes and conducting quality control. Air Traffic cadre instructors will be provided two quotas in the Operations course. If no AT personnel are available for the Operations course, AF personnel will provide operator instructions to the AT personnel.

6.2.2 Airways Facilities (AF) Training. AF technicians will receive Operations course on-site following equipment installation. The Maintenance course will be conducted by the Contractor at the facility following the Operators course. The FAA Academy courses (#40045) will supplement the field taught course. The operators and maintenance course, together make up course #40045. FAA Academy course will be conducted at the Academy in Oklahoma City, OK.

6.3 Service Training Requirements

6.3.1 Airway Facilities.

6.3.1.1 Training Course Requirements. AF maintenance technicians from each location receiving the DVR2 will be provided operations and maintenance training by the contractor on-site or at the FAA Academy.

6.3.1.2 <u>Personnel Skills</u>. This paragraph summarizes the skills necessary to operate and maintain the DVR2 equipment. The AF prerequisite courses are listed below.

44020 Introduction to Computers

6.3.1.3 Operators Training Course. (On-Site Training)

1.   The DVR2 course #48344 is for AT/AF personnel who are responsible for the operations of the DVR2 and consists of theory of operation, system operation and evaluation. Laboratory sessions will provide the student with practical skills in system operating procedures.

2.   Course Hours: 12

3.   Numbers to be trained: site class size is 6
     AT Personnel   2 per facility
     AF Field Personnel   4 per facility

6.3.1.4 <u>Maintenance Training Course</u>. (On-Site Training)

1.   The DVR2 course #48344 is for AF personnel who are responsible for the maintenance of the DVR2 and consists of procedures for preventive maintenance and fault analysis. Laboratory sessions will provide the student with practical skills in system evaluation, routine test procedures, adjustments and fault isolation.

2.   Course Hours: 28

3.   Numbers to be trained: site class size is 4
     AF Field Personnel   4 per facility

6.3.2 <u>Air Traffic Training</u>

AT personnel will attend operations portion of the AF Operations and Maintenance course. The follow-on training will be provided by AT cadre instructors.

6.4 Class Schedule

The facility Operators class schedule is related to the delivery schedule. Installation of the DVR2 will take 1-1/2 to 3 days. Operators training will began immediately after the installation. The Maintenance training will follow the operators training. The delivery schedule can be found in the

Material Delivery Forecast Module (MDFM). The site AF
personnel quota will be entered into the Consolidated
Personnel Management Information System (CPMIS).

6.5 Delivery Schedule

The delivery schedule information is developed in the Material Delivery Forecast Module (MDFM). A hard copy is published in the NAS program master schedules as the equipment delivery report. The report, which follows the summary milestone schedule for each project, is the latest officially published schedule. It contains information on the sequence and dates of equipment delivery to specific sites.

6.6 Attrition Training

The attrition training course for the DVR2 is course number 40045, Digital Voice Recorder 2 (DVR2). Application to A.F. personnel only.

1.   Prerequisites: 44020, Introduction to Computers

2.   Training Administration: Resident Training

3.   Course Length: 40 hours

4.   Course Description: This course provides training for technicians on the Digital Voice Recorder 2 (DVR2). This course is 20 hours academy lecture and 20 hours academy laboratory. Lecture subjects include the theory of operation, evaluations, preventative maintenance procedures, and fault analysis. Laboratory subjects include system operating procedures, system evaluation, routine test procedures, adjustments, and isolation of faults. See http:fist.faa.gov/ for further information.

5.   Distribution: N/A

CHAPTER 7. DIRECT WORK STAFFING

This section identifies direct work employee hours required to perform all maintenance actions necessary to maintain the DVR2 equipment.

7.1 Staffing Requirements

Technicians will not be solely dedicated to the maintenance of DVR2 since preventive and corrective maintenance is expected to consume only a small portion of their available time. Current planning is for cross utilization in the maintenance of other National Airspace equipment.

Workloads associated with the DVR2 are captured under new facility type "VRS", Voice Recorder System. Maintenance staffing levels are derived by AFZ-200 in accordance with FAA Order 1380.40B, Airway Facilities Sector Level Staffing Standard System and FAA Order 1375.4A, Standard Data Elements and Codes Facility Identification and Supplemental Standards. Maintenance staffing levels are presented in the following Table 7.2-1.

TABLE 7.2-1. Direct Work Staffing Levels

System	Facility Code	Class	Maintenance Man Years Per System
DVR2	46JU	G	0.186

CHAPTER 8. MAINTENANCE SUPPORT FACILITIES

8.1 General

This section describes space and facility requirements for maintenance of the DVR2 equipment and for storage space for spares and support equipment.

8.2 Contractor Responsibilities

No special facility requirements have been identified.

8.3 Government Responsibilities

No special requirements have been identified by the Government for maintenance support facilities.

CHAPTER 9. PACKAGING, HANDLING, STORAGE, AND TRANSPORTATION

9.1 General

This section describes the Packaging, Handling, Storage, and Transportation (PHS&T) requirements for shipment of the DVR2 equipment and for the supporting equipment and spares.

9.2 Packaging Requirements for System Equipment

System equipment being shipped directly to each designated site location for immediate installation will be prepared for delivery in accordance with (IAW) ASTM-D-3951.

9.3 Packaging Requirements for Spares

1.   Site spares shipped directly to sites from the contractor will be packaged IAW ASTM-D-3951 Standard Practice for Commercial Packaging, and marked IAW supplemental requirements.

2.   All items identified as electrostatic discharge sensitive, will be preserved/packaged/packed and marked IAW ASTM-D-3951.

9.4 Marking

All components, equipment and spares will be marked in accordance with the marking requirements of ASTM-D-3951. Each unit container, intermediate and exterior shipping container, will be marked with the following, as applicable:

        National Stock Number
        Serial Number
        Part Number
        Warranty Expiration Date
        Contract Number
        Contract Line Item Number

9.5 Transportation Mode Selection

The FAA will route parts returned to the contractor for repair using the most economical means to the Government.

CHAPTER 10. TECHNICAL DATA

10.1 General

This section discusses the technical documentation to be developed by the contractor and/or by the Government.

10.2 Requirements

The contractor is responsible for providing an operations and maintenance manual for the DVR2. Two copies of the manual will be provided to each site receiving the DVR2. The manual number for the operations and maintenance manual is TI 6670.12. The national stock number (NSN) for the operations and maintenance manual is 0056-00-480-0522.

10.3 Quality Control

The contractor will utilize established quality control procedures and maintain a Quality Control Program in accordance with FAA-STD-013d or ISO 9002 (ANSI/ASQC Q9002-1994 American National Standard, Quality Systems- Model for Quality Assurance in Production, Installation and Servicing).

10.4 Configuration Management

Configuration management procedures for the DVR2 will be maintained in accordance with contractor's current configuration management program. Configuration control will cover hardware, software, firmware and documentation.

In accordance with FAA Order 1100.157, AOS-510 will be responsible for maintaining the baseline configuration for the DVR2 in the operational support environment.

When accepted by the Government, the DVR2 equipment will be baselined. Changes generated by the contractor after the baseline has been established will provide the same form, fit and function.

11. Computer Resources Support

This section discusses the computer resources support to be provided by the Government.

The AOS-510 has been provided with all the computer resources necessary to sustain the fielded DVR2. AOS-510 has the responsibility to validate contractor software modifications, documentation, firmware, and computer hardware changes prior to implementation through the use of the DVR2 installed at AOS facility. AOS-510 is the repository for all DVR2 computer operational software.

APPENDIX A. APPLICABLE DOCUMENTS

<u>Number</u>	<u>Title</u>
ASTM-D-3951	Standard Practice for Commercial Packaging
FAA-STD-013d	FAA Standard Quality Control System Requirements
FAA Notice 6670.41	Interim Certification, Standards and Tolerances
FAA Order 6670.4D	Maintenance of Multichannel Voice Recorder Equipment
FAA Order 4250.9B	Field Material Management and Control Handbook
FAA Order 1100.157	National Engineering Field Support Division Maintenance Program Procedures
FAA Order 1375.4A	Standard Data Elements and Codes Facility Identification and Supplemental Standards
FAA Order 1380.40B	Airway Facilities Sector Level Staffing Standard System
FAA Order 4800.2C	Utilization and Disposal of Excess and Surplus Personal Property
FAA Order 6200.4D	Test Equipment Management Handbook
ISO 9002	ANSI/ASQC Q9002-1994 American National Standard, Quality Systems-Model for Quality Assurance in Production, Installation and Servicing)
TI 6670-12	Technical Instruction Book (DVR2)

Appendix B. ACCRONYMS, ABBREVIATIONS, AND DEFINITIONS

AFSS   Automated Flight Service Station
AF   Airway Facilities
AT   Air Traffic
A/G   Air-to-ground
APML   acquisition Program Manager for Logistics
ARTCC   Air Route Traffic Control Center
ATCT   Airport Traffic Control Tower
AC   Alternating Current

CIP   Capital Investment Plan
COTS   Commercial-off-the-Shelf
CPMIS   Consolidated Personnel Management Information System
CRS   Contractor Repair Service

DAT   Digital Audio Tape
DRU   Digital Recorder Unit
DVRS   Digital Voice Recorder System
DVR2   Digital Voice Recorder 2

E&R   Exchange and Repair

FAA   Federal Aviation Administration
FAALC   Federal Aviation Administration Logistics Center
FASA   Federal Acquisition Streamlining Act

G/G   Ground-to-ground
GPS   Global Positioning System

IAW   In Accordance With
ILSP   Integrated Logistics Support Plan

LRU   Line Replaceable Unit

MCR   Multichannel Recorder
MDFM   Material Delivery Forecast Module

NAILS   National Airspace System Integrated Logistics
          Support
NAILSMT   National Airspace System Integrated Logistics
          Support Management Team

NAS   National Airspace System
NDI   Non-development Item
NISC   NAS Implementation Support Contractor

PHS&T   Packaging, Handling, Storage, and Transportation

SMO   System Maintenance Office

Appendix B.   ACCRONYMS, ABBREVIATIONS, AND DEFINITIONS

TRACON   Terminal Radar Approach Control

UUT   Unit Under Test

WC   Work Center

Appendix B. ACCRONYMS, ABBREVIATIONS, AND DEFINITIONS

Administrative Delay Time: The time required for maintenance personnel to be alerted and move to the equipment when a failure occurs.

Availability: The probability of specified operability at any instant in time over the service life of the system. It is the ratio of up-time to total time.

Contractor Repair Service (CRS) Program: This method and term are used when the contractor does not have an established customer repair service available and the FAA develops an annual repair contract for E&R items.

Corrective Maintenance: Maintenance performed on a system as a result of a failure to restore it to a specific standard and tolerance.

Integrated Logistics Support Plan (ILSP): A document that describes the integrated logistics support program requirements, task, and milestones for an acquisition program. The ILSP is developed under direction of the APML with input from the NAILSMT. The ILSP is an iterative document and is updated for each key decision point.

Line Replaceable Unit (LRU): The lowest unit to be replaced within the system during site maintenance. It is a separate, installable, physical package performing a single function or group of closely related functions.

National Airspace Integrated Logistics Support (NAILS): A disciplined, approach to plan and integrate support considerations into design, acquire the necessary initial support for the subsystem/equipment, and identify life-cycle support requirements.

Integrated Logistics Support Management Team (NAILSMT): A team formed for each acquisition which identifies requirements and plans and coordinates and integrates a logistics structure which will ensure systems are supportable prior to deployment. The team includes a representative for each logistics element.

Preventive Maintenance: Scheduled maintenance performed on the system to extend its operational life, reduce failures, and/or realign a system.

APPENDIX C DVR2 POINTS OF CONTACTS

NAME	ORGANIZATION	TELEPHONE
George Clark	APML, Communications and Navigation Division, ARN-200	202-493-4789
Jim Little	IPT Lead for Voice Switching and Recording, AND-320	202-493-4651
Clarissa Riffe	COTR, AND-320	202-493-4793
Don Terry	Contracting Officer, ASU-330	202-267-7164
Bill Howard	Communications and Navigation Division (AF/AT) Requirements), ARN-200	202-385-7567
Jeremy Traylor	Communications Systems Engineering, AOS-510	405-954-9715
Dan Hargraves	Training Division, AFZ-100	202-267-3044
Carrie Cline	FAA Logistics Center, AML-8000	405-954-5589
Larry Driver	FAA Academy, AMA-410	405-954-4217
Wayne Matthiesen	Contractor Support, ARN-200/CEXEC	202-554-4530 x105
Carl Stokes	In-Service Management	202-493-5120
REGIONAL ASSOCIATE PROGRAM MANAGERS		
Mel Leskinen - AAL	ANI-700	907-271-5199
Doug Edwards - ACE	ANI-500	816-329-3517
Steve LoVerde - AEA	ANI-200	718-553-3469
Doug Weaver - AGL	ANI-400	847-294-8187
Jack Emberg - ANE	ANI-100	781-238-7808
Jackie Baldwin - ANM	ANI-800	206-227-2435
Steve Duckett - ASO	ANI-300	404-305-6527
Ana Gonzalez - ASW	ANI-600	817-222-4680
Gary Pettengill - AWP	ANI-900	310-725-3495

APPENDIX D   DISPOSAL PLAN

The following is the multichannel recorder disposal plan:

Multichannel Recorder (MCR)
And
High Capacity Recorder (HCR)/ High
Capacity Voice Recorder (HCVR)

Disposal Plan

**Product Lead, Voice Switching and
Recording Product Team, AND-320**

TABLE OF CONTENTS

1.0 Introduction

The goal of this plan is to assist in the systematic removal of existing analog voice recorders, spares, and associated support equipment from the FAA inventory as they are replaced by current production Digital Voice Recorder 2 (DVR2). In support of this goal, this plan addresses the requirements of FAA Order 4800.2, Utilization and Disposal of Excess and Surplus Personal Property. This plan will be made an attachment to Integrated Logistics Support Plan (ILSP) for the systems to which it pertains. This plan will address FAA facilities only and does not apply to Department of Defense (DOD) facilities.

It shall be the strategy of the Voice Switching and Recording Integrated Product Team, AND-320, to affect removal of the affected equipment and systems from the NAS, to reutilize assets to the maximum extent practical and to conserve support resources consistent with optimum life-cycle cost. Upon removal of the affected equipment, ARN will coordinate the cessation of support with the Regions and subsequently request the FAALC to dispose of excess materials. Equipment that is declared as excess shall be disposed of in accordance with existing FAA policy and procedure as described herein and further support to recipients of such equipment through sale or donation will not be available.

Total disposal shall be managed in accordance with the Federal Property Management Regulations (FPMR). Deviations from the procedures herein shall have prior approval from the Voice Switching and Recording Product Team, AND-320.

2.0 Schedule

The schedule for disposal and discontinuation of support for the equipment described herein will be contingent upon installation of the DVR2.   Simultaneous operation of existing and replacement systems will be provided for. A detailed schedule of DVR2 installations will be provided by the Voice Switching and Recording Product Team, AND-320. For planning purposes, the following generic schedule is provided:

DVR2 install	C-30 days
System cutover	C-0 days
Site notification of cutover	C+1 day
Maintenance support discontinued	C+2 days
Existing system packaging & handling	C+5 days
Existing system transportation	C+10 days

C = cutover determined by site

3.0 System Description

There are three categories of voice recorders that are the subject of this plan. These categories are comprised of at least 5 different recorders of three general types that have entered service at different times over the past 15 to 20 years. All of the recorders that are covered by this plan are currently used to record time-stamped operational communications in the Air Traffic Control (ATC) environment. These recorders are similar to those used in financial and brokerage businesses as well as local emergency service dispatch centers (911 centers).

3.1 Multichannel Recorder (MCR)
The inventory of MCRs includes both Magnasync (models TR1710 and TR1720) and Dictaphone (model 5000 series) 10 and 20-channel reel-to-reel analog voice recorders. They were supported by a reproducer system used for duplication of recordings. This equipment is used in Airport Traffic Control Towers (ATCTs) and Terminal Radar Approach Control (TRACON) facilities as well as Automated Flight Service Stations (AFSS').   First fielded in the late 1970's these recorders will be over 15 years old when replacement is planned to begin in 1996. The acquisition cost of MCRs and the reproducers was as follows:

    Model 5102 10-channel $6,377.   (NSN 8200-00-540-25551)
    Recorder System
    Model 5103 Reproducer $3,485.   (NSN 8200-00-540-35571)
    System
    Model 5205 20-channel $8,481.   (NSN 8200-00-540-25561)
    Recorder System
    Model 5103 Reproducer $3,565.   (NSN 8200-00-540-25571)
    System

3.2 High Capacity Recorder (HCR)
The inventory of HCRs includes 3-M 152-channel recorders (FA Type 8966). These recorders were used in Air Route Traffic Control Centers (ARTCCs) and pre-date the High Capacity Voice Recorders discussed below. The acquisition cost of a HCR is not available.

3.3 High Capacity Voice Recorder (HCVR)
The inventory of HCVRs includes Magnasync (model 5000 series) 60-channel reel-to-reel analog voice recorders. These recorders are used in ARTCCs and are the successors to the HCR and were fielded from 1992 through 1995. They were also supported by a reproducer system. Fielding of the HCVR was discontinued in favor of the DVR2 under Capital Improvement Program project 22-11. The acquisition cost of a HCVR was as follows:

     Specialist Plus Recorder/Reproducer System $14,468
(NSN 8200-00-120-43601)
     Specialist Plus Portable Reproducer System $ 7,342
(NSN 8200-00-120-43611)

3.4 Magnetic Tape Winder and Cleaner
The FA 9452 magnetic tape winder and cleaner (BowWinder Model 632) supports periodic maintenance of the current analog reel-to-reel

recording tapes. The acquisition cost of a BowWinder in 1970 was
$22,000. Remanufacture / overhaul of the BowWinder costs $15,000.

4.0 Current System Maintenance Concepts

4.1 Multichannel Recorder
Site maintenance for the MCRs is performed by FAA electronic technicians. Limited depot support is provided by the FAALC.

4.2 High Capacity Recorder
The HCRs are maintained on site by FAA electronic technicians. Limited depot support is provided by the FAALC. Because these systems are no longer manufactured, there is no contractor support of any kind. Consequently, depot repair support is not available.

4.3 High Capacity Voice Recorder
Site maintenance is performed by FAA electronic technicians. Supply support is provided by the FAALC and depot repair is performed by Magnasync.

4.4 BowWinder Tape Winder and Cleaner
The BowWinder equipment is maintained on site by FAA electronic technicians. Depot support is obtained directly from the manufacturer by the Regions.

5.0 System Life Cycle / Replacement System

System life cycles for the older recording systems were not documented to the same level that the FAA does today. Applying a 20 year life cycle to the subject recorders as a group beginning with their respective acquisitions indicates that the existing analog recorders are nearing the end, or are past, their life cycle. From a practical standpoint there are factors related to the current NAS environment that affect the timing of disposal actions for these recorders. These factors include reduction of operation and support costs, system availability, and system supportability.

5.1 Multichannel Recorder
The life cycle for the MCR will end with replacement by the DVR2 projected to be substantially complete by 2000. The MCRs will be replaced by the DVR2 beginning in 1996 and is expected to be substantially complete by 2000.

5.2 High Capacity Recorder
The life cycle for the HCR has ended and disposition of the obsolete equipment is required as of this writing. Because of the age, condition and supportability of the equipment it will not be reassigned within the FAA.

5.3 High Capacity Voice Recorder
The life cycle for the HCVR is projected to end when the last unit is replaced by the DVR2. Removals of HCVRs will begin in 1996 and are projected to be complete by 2004.

5.4 BowWinder Tape Winder and Cleaner
As the BowWinder equipment supports the existing analog recorders, its life-cycle is predicated on that of the above recorders. Its life-cycle

will end when the last analog voice recorder is removed from operational service.

5.5 Planned DVR2 Sites
A current listing of sites planned to receive the DVR2 is available in each Region through the Regional Associate Program Manager (RAPM). The list provides the both the sites and a near term schedule for DVR2 delivery. The master listing is available through the Voice Switching and Recording Product Team, AND-320, Projects Bulletin Board or by contacting Mr. Andy Michel, AND-320, at (202) 493-4795.

6.0 National Requirements

6.1 Multichannel Recorder
A quantity of MCRs will be retained by the FAALC to support the transition to the DVR2. This quantity will be determined by the FAALC. A reproducer unit will be retained at FAA headquarters should the need arise to review archived tapes.

6.2 High Capacity Recorder
Because the HCR is obsolete and no longer supportable, no further efforts will be undertaken to provide supply support, depot repair support or to cannibalize surplus units for spare parts. The FAALC will discontinue support for this system in 1996. A reproducer unit will be retained at FAA headquarters should the need arise to review archived tapes. Reproducer units may also be retained at Regional Offices or field sites to support playback of archived tapes.

6.3 High Capacity Voice Recorder
The FAALC will recover a limited number of HCVR assets to support these systems during the transition to the DVR2.

6.4 BowWinder Tape Winder and Cleaner
Excess BowWinder Tape winder and Cleaner assets should be coordinated with the FAALC. The point of contact is Ron Kuhlman, (405) 954-4102. There are no national requirements for this equipment and it may be disposed of upon completion of DVR2 installation and appropriate screening.

7.0 Reclamation / Reuse

7.1 Responsibilities
The FAALC, AML-8000 will be responsible for coordinating reclamation of recorder assets.

7.2 Disassembly, Test, Restocking, Packaging Handling & Transportation (PHS&T)
Disassembly, test, restocking and PHS&T for reclaimed recorder assets will be the responsibility of AML-8000.

7.3 Costs
The costs of asset recovery to support the above systems will be borne by AML-8000.

8.0 Local Requirements

8.1 Site Spares
The costs of cannibalization of obsolete systems for regional and/or site use will be borne by the respective regions.

8.2 Other Needs
The costs of cannibalization of obsolete systems for purposes other than on-site repairs will be borne by the Regions. It should be noted that supply and repair support will be discontinued for the MCRs, HCRs and HCVRs not later than, removal of the last unit of each system type. Support beyond these times will be the responsibility of the Regions.

Due to the need for HCR reproducer units (FA-8966/2) to support archived tapes, regions and sites may retain these units as necessary. Based on regional inputs, no further support from the FAALC will be provided. Regions and /or sites desiring additional spare parts are encouraged to monitor the Logistics and Inventory System (LIS) / Utilization, Screening and Disposal (USD) subsystem to obtain remaining resources.

9.0 Equipment Removal / Disposal Program

9.1 National
MCRs, HCRs, and HCVRs will be removed by site and regional personnel. No contractors will be used for equipment removal. Removals will coincide with the installation of the DVR2 unless otherwise coordinated by AND-320 and ARN-200. Subsequent disposal of surplus equipment shall be conducted in accordance with the most current issue of FAA Order 4800.2. Information pertinent to the disposal process is provided in the following subsections.

9.2 Special Disposal Authority
MCRs, HCRs and HCVRs are not covered by special disposal authority requirements.

9.3 Responsibilities
The following personnel and organizations will be responsible for executing the responsibilities detailed in this plan.

9.3.1 Property Custodians

    A.   Excess Reporting

At least 90 days prior to the scheduled DVR2 equipment replacement for each affected facility in each Sector; property custodians should contact the FAALC, AML-641, at (405) 954-5227 to obtain initial disposition instructions. The FAALC will determine the types and quantities, if any, of equipment to be recovered to support the transition from the existing recorder inventory to the DVR2. If disposition instructions are not received from the FAALC within 45 days, contact AML-641, at (405) 954-5227 for status.

    B.   Disposition Guidance for Excess Analog Voice Recorders

1. Required Items.

a. The items identified as excess and approved for shipment
to the FAALC will be shipped as whole assets (including all
circuit cards, modules, etc.) They will be boxed and marked
with the appropriate NSN and forwarded to the FAALC or other
designated consignee. If spare circuit cards, modules,
unused tapes, etc. are also required by the FAALC, they will
also be marked and boxed as appropriate. Under no
circumstances should any additional items be included in
this shipment which are not specifically identified by the
FAALC.

2. Remaining Equipment.

a. Dispose of remaining equipment in accordance with the
latest version of FAA Order 4800.2. Offers to sell equipment
described in this plan shall indicate that the FAA considers
the equipment obsolete and no longer provides logistical or
technical support for it.

b. Dispose of all used recording tapes after archiving
requirements are met and render them unusable.

C.   Processing Instructions

1.   Contact Mr. Larry Baranski, Packaging Specialist, AML-
340, at (405) 954-5446 to receive instructions on
transportation, proper packaging and how to obtain packaging
materials.

        NOTE: The FAALC will be responsible for transportation
              costs associated with shipping replaced
              equipment to the FAALC as per the disposition
              instructions provided.

        Equipment that is planned to be recovered by the FAALC
        is identified in Attachment (1) hereto.

9.3.2 Property Managers

A.   Excess Reports

Property Managers will provide excess reports in accordance
with regional procedures and the latest version of FAA Order
4800.2.

B.   Disposition Instructions

The FAALC, AML-641, will provide initial disposition
instructions to the Property Custodian with a copy to the
Property Manager.

C.   Property Record Adjustment

        An adjustment to the in-use personal property records shall
        be made in accordance with regional procedures and the
        latest version of FAA Order 4800.2.

9.3.3 FAA Logistics Center

It is extremely important that the FAALC utilize as much of the
reported excess as is possible. It is equally important that the
FAALC not obtain items beyond those that are needed to meet the
agency's essential requirements.

A.   Excess Reports

        Processing of excess reports should be completed within 30
        days after receipt of each Excess Report.

        1.   Upon receipt of applicable excess reports, screen
             available items to determine if a valid need exists for
             the items.

        2.   Indicate to property custodians and property managers
             those items which are needed and should be shipped to
             the FAALC or designated consignee.

B.   Disposition Instructions

        The FAALC will provide all initial disposition instructions
        to the Property Custodians with copies being sent to the
        Property Manager. Documentation shall be developed and
        provided in accordance with the latest version of FAA Order
        4800.2.

9.3.5 Communications and Navigation Division, ARN-200

A.   Work with the Voice Switching and Recording Product Team,
        AND-320, in reviewing
        and recommending concurrence/non-concurrence with requests
        for deviation from this
        plan.

B.   Notify the FAALC, AML-641, of any approved program changes
        or operational requirements that will impact future FAALC
        support requirements (e.g., continued operation or reuse of
        facilities, transfers to military or foreign users, etc.).

C.   Coordinate changes to maintenance data recording systems to
    reflect disposal.

Questions regarding the disposal of equipment under this plan should be
directed to Mr. Bill Howard, ARN-200, at (202) 385-7567 or to Mr. George
Clark, ARN-200, at (202) 493-4789.

10.0 Hazardous Materials Issues

MCRs, HCRs, and HCVRs contain no known hazardous materials.

11.0 Precious Metals Recovery Issues

MCR, HCR and HCVR design do not contain any significant amount of precious metals that warrant special salvage action.

12.0 Environmental Issues

Removal of MCRs, HCRs and HCVRs will not create or impact environmental issues. No environmental impact statement or assessment is required.

13.0 Real Property Issues

Removal of MCRs, HCRs and HCVRs will not create or impact real property issues requiring building renovation or restoration.

14.0 Legal Issues

Removal of MCRs, HCRs and HCVRs will not create or impact legal issues. The design and deployment of the DVR2 as the replacement system has been fully coordinated with the Office of General Counsel, AGC.

This plan does not supersede existing requirements for archiving of voice recordings. Archived tapes will be maintained in accordance with the Facility Operations Manual.

15.0 Safety Issues

Removal of MCRs, HCRs and HCVRs will not create, or impact, safety issues.

16.0 Labor Relations Issues

Removal of MCRs, HCRs and HCVRs will not create or impact issues affecting the unions. Deployment of the DVR2 as the replacement system has been fully coordinated with PASS and NATCA.

17.0 PHS&T Issues

None.

18.0 Political/International/Historical Issues

Removal of MCRs, HCRs and HCVRs will not create, or impact, political or international issues. No historical issues or equipment of historical significance per FAA Order 1200.8 are involved with disposal of equipment under this plan.

APPENDIX 1. RECOVERY AND DISPOSAL CANDIDATES LIST

FAALC Voice Recorder Equipment
Recovery Candidate List

Magnasync TR-1710 10-channel recorders
Magnasync TR-1720 20-channel recorders

Magnasync 60-channel recorders & reproducers
Dictaphone 20-channel recorders & reproducers

Bulk degausser units

BowWinder Model 632 Tape Winder and Cleaner

Voice Recorder Equipment
Disposal Candidate List

Magnasync TR-1500 recorders & reproducers
Dictaphone 10-channel recorders & reproducers

3-M High Capacity Recorders

BowWinder Model 632 Tape Winder and Cleaner

APPENDIX E EQUIPMENT RETURN FORM

The following is the Equipment Return Form:

LITTON-DENRO

Digital Voice Recording System Series 2 Program

Equipment Return Document

This one page form is provided to FAA technicians for them to record necessary information when returning an unserviceable DVR2 part to the Litton-Denro depot. Although it accompanies the replacement part, **it must be returned with the defective part** as soon as possible but not later than 20 calendar days after receipt of the replacement part.

Technicians are requested to provide as much information as possible regarding the "reason for return" to assist the depot in troubleshooting the returned part. Include the troubleshooting steps, as appropriate, used in determining the part's need for repair.

Site Returning Part	(Site fills in)
Item Description	
Quantity	
Part Number	
LIS Voucher Number	

Reason for Returning (Site fills in)

Return the defective part and this completed form to:

LITTON-DENRO, INC.
Attn: DVR2 DEPOT
9318 Gaither Road
Gaithersburg MD 20877-1441

Your assistance in returning unserviceable parts will result in more accurate demand data and more efficient supply support.

DVR2 E&R Form